

CONNECTICUT INDUSTRY

JUNE NUMBER



1928

PUBLISHED BY
THE MANUFACTURERS ASSOCIATION
OF CONNECTICUT, INC.

Audits, Examinations and Special Investigations for Credit, Financing and General Purposes.

Special Department for Conducting Examinations of Banks, Municipalities and Financial Institutions.

Cost and Financial Systems Devised and Installed.

Federal and State Income and Inheritance Taxes.

Consultants in All Matters Relative to Accounting Procedure, Finance and Organization.

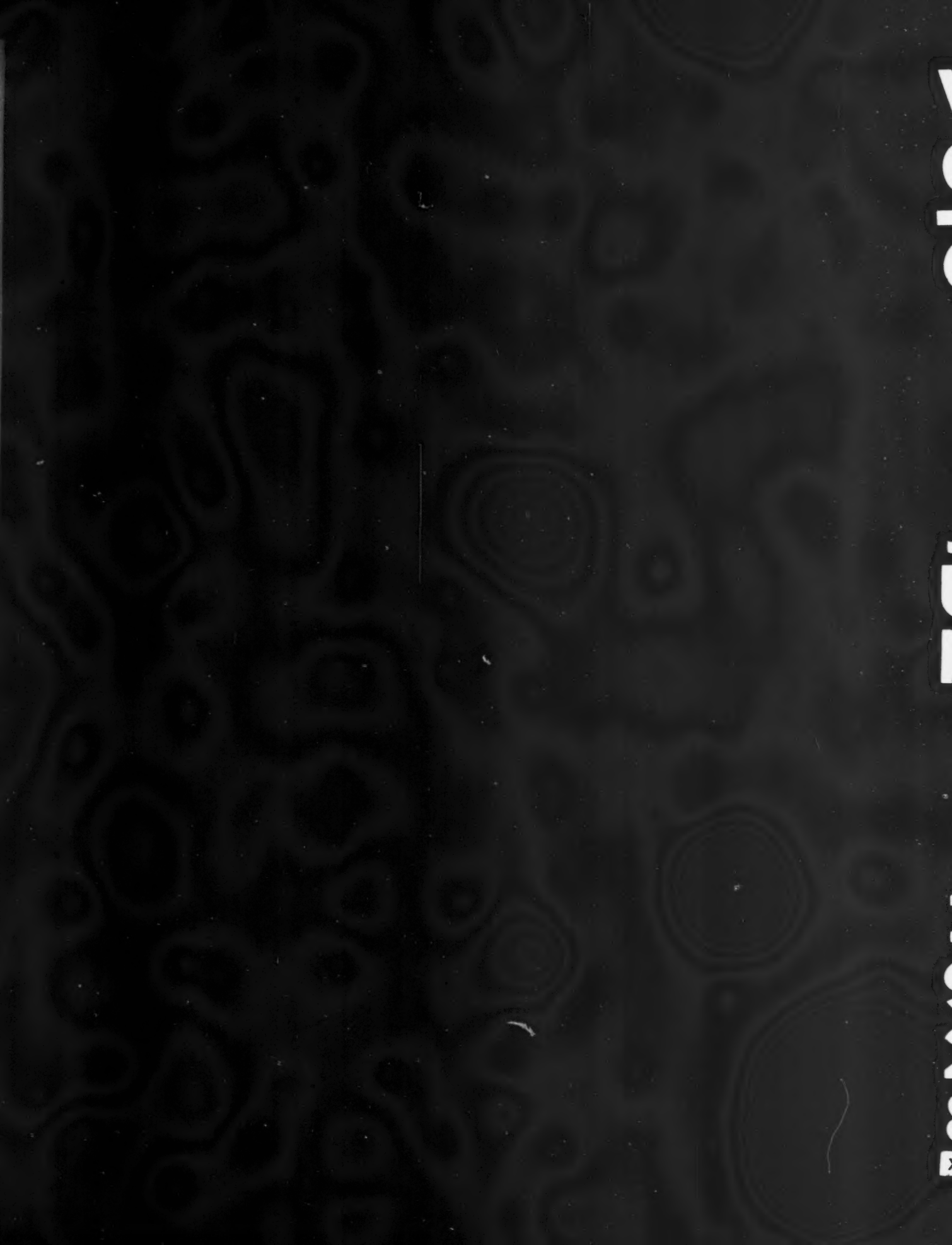
Hadfield, Rothwell & Soule

CERTIFIED PUBLIC ACCOUNTANTS

HARTFORD — BRIDGEPORT

— GENERAL PARTNERS —

SETH HADFIELD C.P.A.
PERCY ROTHWELL C.P.A.
FRANK E. SOULE C.P.A.
CHARLES F. COATES C.P.A.



Audits, Examinations and Special Investigations for Credit, Financing and General Purposes.

Special Department for Conducting Examinations of Banks, Municipalities and Financial Institutions.

Cost and Financial Systems Devised and Installed.

Federal and State Income and Inheritance Taxes.

Consultants in All Matters Relative to Accounting Procedure, Finance and Organization.

Hadfield, Rothwell & Soule

CERTIFIED PUBLIC ACCOUNTANTS

HARTFORD — BRIDGEPORT

— GENERAL PARTNERS —

SETH HADFIELD C.P.A.
PERCY ROTHWELL C.P.A.
FRANK E. SOULE C.P.A.
CHARLES F. COATES C.P.A.

A Word of Explanation to New Friends

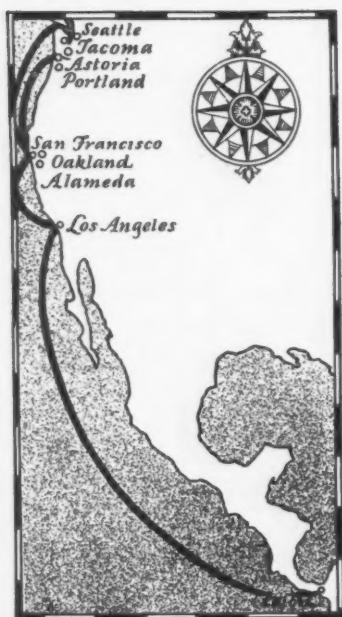
THE Manufacturers Association of Connecticut is a voluntary service organization made up of approximately 800 of the representative industries of Connecticut, which in turn employ approximately 225,000 workers and represent invested capital of over \$692,000,000.



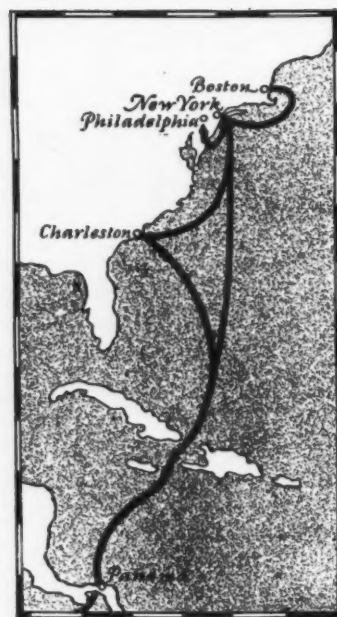
The Association was incorporated in 1910 and has for its object the advancement of the interest and welfare of its manufacturers and of the State of Connecticut as a whole. It serves its members in all matters in which they have a common or an individual interest. It speaks for them before Congress, at the State Legislature, before the Interstate Commerce Commission, or wherever united representation is required. Through the medium of *Connecticut Industry* and a special bulletin service, it keeps members advised of matters of importance, whether this be in the field of human relations, federal or state taxation, transportation, research, power, national or state legislation, or any one of the hundred other subjects in which the manufacturer of today is keenly interested. Under the direction of its Board of Directors and its committees, composed of industrial leaders who give generously of their time to Association affairs, it is guided in the difficult problems which beset industry at every step and the ultimate and satisfactory solutions of which are so vitally important in a state as highly industrialized as is Connecticut. Over seventy prominent industrialists, each an expert in his field, serve upon these committees, giving the benefit of their wide experience to the membership at large, and in this self-sacrificing interest lies the organization's greatest strength.



It is the aim of the Association to be constructive and progressive and to help make Connecticut the best state in the Union industrially and every other way. In addition to serving its members, the information which it compiles on numerous matters of general public interest is available for the use of the state and for outside research organizations.



Meeting the transportation needs of the Atlantic and Pacific Seaboards through the Panama Canal



The transportation needs of American industry are increasing with phenomenal strides. Modern business demands dependable as well as economical transportation. In this day of current buying, low inventories and quick turn-over, one must ever be alert to changing markets. Transportation must be frequent, swift. Your products must arrive when promised and on schedule. From Coast-to-Coast, through the Panama Canal, the American-Hawaiian Steamship Company operates 23 fast steam and motor ships, with

one sailing East and one sailing West every 4 days.

The reliability of the Panama Canal Line has become traditional in the Coast-to-Coast trade. This businesslike fleet has an annual carrying capacity of 1,200,000 tons, handling

products of every description, worth many millions of dollars. To ship via American-Hawaiian is to be assured that your merchandise will be transported from Coast-to-Coast swiftly, efficiently and promptly.

During a recent year but three vessels were late out of an average sailing of one ship every $3\frac{3}{4}$ days. 1927 saw the adoption of a 4 day sailing schedule, and the percentage of on-time arrivals for the year was 96%, a record unequaled by any other line.



AMERICAN-HAWAIIAN STEAMSHIP COMPANY

"Coast-to-Coast Since 1855"

CONNECTICUT INDUSTRY

published by

The Manufacturers Association of Connecticut, Inc.

Phones 2-1157 2-1158

EXECUTIVE OFFICES 50 LEWIS ST., HARTFORD

ANNA B. SANDS, EDITOR

VOL. VI

JUNE, 1928

No. 6

IN THIS NUMBER

	Page		Page
NEW ENGLAND'S SPIRIT	2	TAXATION DEPARTMENT	21
THE MAKING OF AN ORGAN	5	<i>Cone vs. The New Britain Machine Com- pany Case</i>	
<i>By C. B. Floyd, Hall Organ Company</i>		AERIAL VIEWS OF CONNECTICUT PLANTS	22
A FEW FUNDAMENTALS IN COST ACCOUNTING ..	9	RESEARCH IN DEVELOPING FOREIGN TRADE AND ADVERTISING	22
<i>By J. V. Montague, Scovill Manufacturing Company</i>		M. A. C.'s VIEWS ON CURRENT NEWS	24
INDUSTRIAL NEWS AROUND THE STATE	12	TRANSPORTATION	25
INDUSTRIAL PREPAREDNESS IN CONNECTICUT ..	15	SALES EXCHANGE	28
<i>By Colonel B. A. Franklin</i>		EMPLOYMENT	28
CONGRESS AT A GLANCE	19		
<i>News of the Month in Washington</i>			

CHAIRMEN OF COMMITTEES

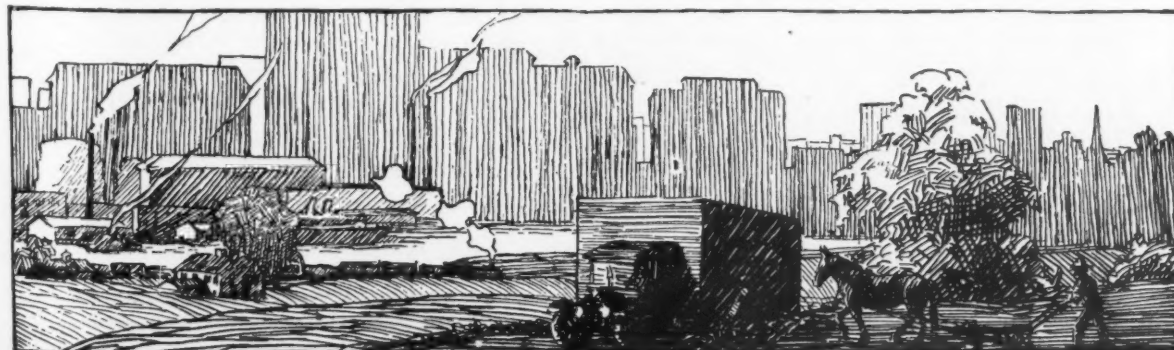
Finance and Taxation, GUY P. MILLER
Industrial Relations, CARL F. DIETZ
Agriculture, WILSON H. LEE
Traffic, W. H. PEASE
Power and Waterways, F. S. CHASE
Research, JOHN H. GOSS
Education, C. T. TREADWAY
Legislative, E. KENT HUBBARD
*Highway Safety and Scenic
Restoration*, F. S. CHASE

OFFICERS AND DIRECTORS

E. KENT HUBBARD, *President*
JOHN H. GOSS, *Vice-President*
ROBERT C. BUELL, *Secretary-Treasurer*
JAMES W. HOOK
GEORGE S. HAWLEY
DON H. CURTIS
JOS. S. PORTER
JAMES L. GOODWIN
G. E. HAMMANN
WILLIAM G. PARK
R. LELAND KEENEY
FRANK GOODCHILD
DE WITT PAGE
JOS. R. ENSIGN
C. F. DIETZ
H. H. PEASE
JOS. A. HORNE
J. P. T. ARMSTRONG
F. B. FARNSWORTH

ADMINISTRATIVE STAFF

C. L. EYANSON, *Assistant to the
President*
ANNA B. SANDS, *Assistant Secretary*
H. J. SMITH, *Industrial Secretary*
WM. A. DOWER, *Assistant Industrial
Secretary*
J. E. WUICHET, *Research Department*
F. A. KIRK, *Traffic Manager*
DEPARTMENTAL STAFF
A. M. MYERS, *Office Manager*
M. RAITES
E. BANNON
R. JOHNSON
A. MIGLIORA
W. ZIGLATZKI
C. REICHARD
M. O'CONNELL



NEW ENGLAND'S SPIRIT

We of New England may feel a just pride in the accomplishment of the men and management of the Central Vermont and Boston and Maine Railroads. Suffering heart-breaking losses in rolling stock, lines and bridges only last November, they made no appeal to other sections of the country for aid, but put their minds and hands at work.

Although particularly hard-hit the Central Vermont has established, since May 27, through service from Boston to Montreal. In order to accomplish this, ballast handling equipment and men were rushed to them by the other New England roads. Seven hundred thousand cubic yards of material were moved. Twenty-one bridges were rebuilt, ninety miles of track replaced, literally thousands of washouts filled, and many buildings repaired or rebuilt — a tremendous task cheerfully but determinedly faced and splendidly accomplished.

The same spirit which rebuilt the Central Vermont Railroad has and is restoring the flood devastated areas. Through the New England Council the bankers of New England immediately came to the financial aid of the stricken ones. Not solely on a mission of emergency aid, but with a wholehearted offer of aid in permanent rebuilding.

Such is the spirit of New England — to face conditions, to overcome obstacles and to lead the procession.

Edmund S. Kennedy

The Making of An Organ

By C. B. FLOYD, Vice-President and Sales Manager

Hall Organ Company, West Haven, Connecticut

IN the midst of a constantly increasing appreciation, both within New England and without, of the diversity of Connecticut's products is so little understood, yet there is probably no one line which so well exemplifies the old traditions of Connecticut in the employment of



In the Setting-up Room

and the high degree of skill required in their manufacture, one line should not be overlooked, — the manufacture of pipe organs. There is probably no one product made today of which so little is known, or the manufacture of which

highly skilled and specialized artisans in a trade which can never become a mechanical one.

To the average person an organ is a somewhat mysterious thing, recognized as essential in a church, lodge or well-equipped hall, or

theater, yet consuming a vast amount of space, producing endless arguments with architects and builders, and costing, — yes, here is the one deep impression — an apparently immensely large sum of money.

In a very limited space, I am going to explain to other manufacturers, and to all readers of *Connecticut Industry* how, when they serve upon their local committees charged with the selection of an organ or advise with their architects and builders, they are engaged in procuring one of the most highly specialized products of this or any other day and age. If the building in which it is to go is already erected then the organ manufacturer must, if humanly possible, adapt the size and form of the organ to the

particular spot where it is to rest, even though that spot may be entirely unsuited. If, on the other hand, that highly desirable manufacturer's Seventh Heaven is attained, in which the architect and builder consult with him in advance, and a proper space is provided as the walls of the building go up, an organ will be constructed still of a special design, but in all probability at a lesser cost and more eminently satisfactory in that its builder knows that it will produce the desired volume and quality of tone, with a much lessened chance of readjustment from time to time.

To the manufacturer of a complicated machine tool, for example, the construction of an organ would appear almost absurdly simple in its mechanical features. Its component parts are each, however, the product of hours of painstaking hand labor. From the minute flue pipes, which give the tones high above the pitch of ordinary musical instruments, to the great pipes of carefully prepared com-

position metals and the square laminated wood pipes made from imported and carefully selected material, every piece must be worked out for every organ, its size gauged by the space requirements and the range and quality of tone demanded in the completed organ.

An organ is, of course, as everyone presumably knows, a wind instrument, the main power furnished through large electrically operated

fan blowers and auxiliary bellows, and controlled by the organist in its operation of the smaller wind chambers, which, as a key is pressed down and the valve opened, forces the air into a particular pipe or pipes. As the wind is admitted it is forced through the opening in the foot of the pipe at (a) up to a very nar-

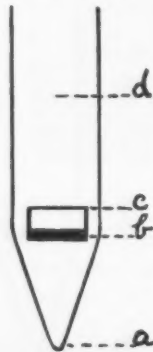
row opening at (b) between a horizontal piece of metal and the lower lip. This sheet of wind strikes the edge of the upper lip (c) and sets up a vibration of the column of air in the pipe above (d) producing a tone dependent upon the length of that column of air.

The longer and larger the pipe, the deeper the tone, and often where the space is limited, a pipe will be mitred once, and sometimes several times, giving the effect, more or less, of the elbow joint of a stove pipe. Certain tones of great softness and depth can only be produced by wooden pipes, and their tuning is accomplished by regulating a wooden plunger inside, if it is a stopped pipe, or by a metal shade if it is an open pipe.

A trip through the plant showing the manufacturing in its various stages of progression will give a clearer idea of each main process than can be gained by any other method. We come first, on the ground floor to a huge vaulted room, three stories high, with ample window space to light it from top to bottom. Stout walls permit the erection of balconies at any desired point, necessary in the many cases where organs are built tier upon tier. We



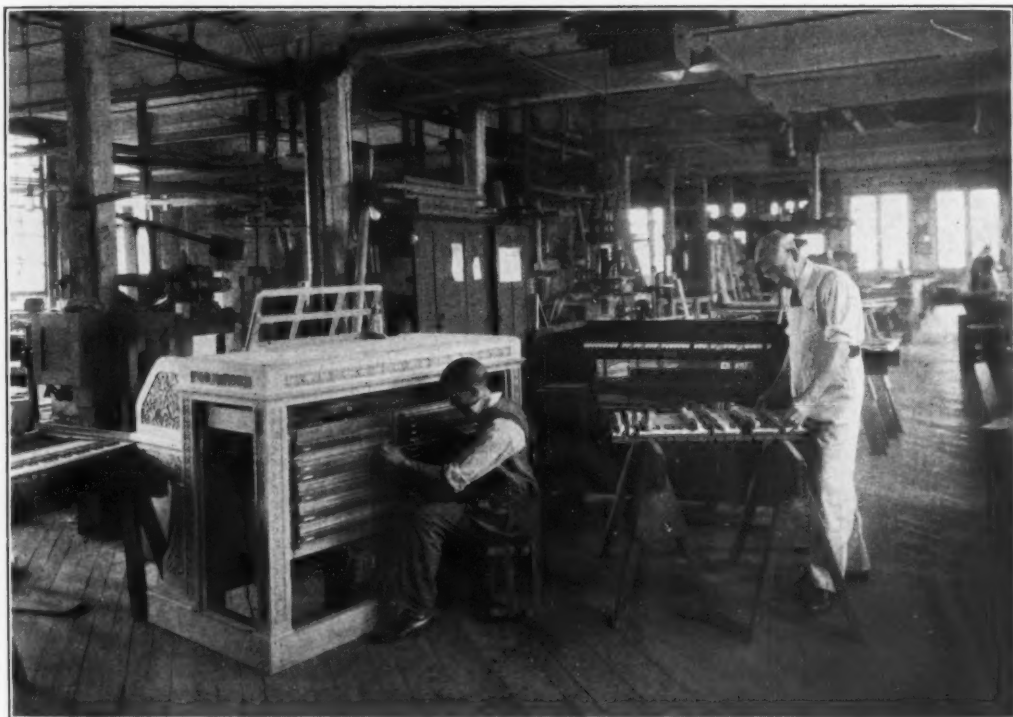
The Pipe Room



mount to a gallery at one side, and here enter the upper floors which house the wood working and other departments. In one room several machines, operating somewhat on a drop-press principal, burn the first part of the graduated holes in wooden planks upon which each series of pipes will rest. A skilled operator

of contact, where keys or couplers move.

Leaving this room, we may next watch the making of wooden pipes. Layer after layer of various kinds and fine grades of wood are fitted and glued together so that a perfect smoothness of tone will be produced and warping and other damage from weather and tem-



The Console Room

completes the drilling and should his eye fail in the centering of his drill, neither tuning nor anything else can bring the pipe which rests over that hole to its proper pitch.

All channels in the chest bars are immersed in a bath of melted paraffine which permeates the pores of the wood and prevents all seepage of air from one channel to another.

Girls, their fingers more delicate and their touch more sensitive, do most of the covering with fine leather of the valves which control the air and the pneumatics which operate them.

There are many coupler switches fitted with the most delicate control wires, thousands in number, and for that work also, girls are better adapted.

Every operation of the organ's mechanism must, so far as possible, be soundless, and felt dampers further deaden the sound at all points

perature changes, particularly the latter, will be prevented.

In another part of the Action Room the consoles are made, and it is this part of the instrument upon which there is often lavished hand carving of the most exquisite sort. Ebony, walnut, oak, mahogany and maple all have their particular places both for decorative and utilitarian purposes. In the foot pedals, for example, ebony and maple are generally combined. The ivory keys are the product of another Connecticut industry, the Comstock Cheney Company of Ivoryton.

The completed organ, beautiful, and built for generations, must be fully assembled and tested in the plant, then taken down and re-assembled in its final resting place by experts from the factory. Once properly installed, it has many years of service before it, and will

stand a lasting monument to the genius of the Connecticut workmen who produced it, and the scrupulous regard for production details which has gone into its making.

Every metal pipe is cut by hand from flat sheets of metal, according to a fixed pattern, and then rounded into shape over mandrils with hand beaters. The edges are then soldered together at a flush joint, a most delicate and skilled operation.

The modern electric organ, although containing thousands of wires and contacts, contains really fewer moving parts than the old style organ with its many wood and metal connections. Today, when a key is pressed, there are only two movements between the key and pipe, viz:— a small disc or armature under the magnet, which acts as a valve to exhaust the diaphragm pneumatic (the only other moving part) upon which rests the disc valve which lets air into the pipe.

The console is the most interesting unit of the organ, as it contains the numerous controls through which the organist manipulates the entire instrument. In addition to the three or four sets of keys and pedal key-board, are the stop tablets, couplers, combination pistons, expression pedals, full organ pedals, and reversible pedal. It is something like the pilot house of an ocean liner, but with many more controls. All these are electrically connected with intricate and delicate mechanism as accurate as a Swiss watch.

From a musician's standpoint the Voicing Room is the most important department, since here the various tonal colors are determined. The finished pipes are brought here and the voicer, or tone artist, places them upon a miniature organ, one set at a time, and manipulates them individually to obtain the required string quality, flute quality, or clarinet quality, as called for by the purchaser. To obtain the

exact shades of beauty and harmony requires the utmost patience, skill and experience. The real soul of the organ is born here.

When the organ is assembled in the Erecting Room, skilled workmen are most important to insure perfect correlation of the many pipes and parts of the instrument.

Every organ is tested carefully before it is dismantled, boxed and shipped to destination. One good sized organ often requires two large freight cars for transportation.

Every piece of mechanism is manufactured in this factory, including the magnets, phosphor bronze contacts, pneumatics, bellows, tremolos, and hundreds of other accessories.

A medium sized organ contains at least 2,500 separate pieces of mechanism, 3,000 or 4,000 pipes, ranging in length from $\frac{3}{4}$ " to 16 ft., 300 or 400 magnets, 2,000 pneumatics and valves, and five miles of insulated copper wire. If it were possible to count accurately every individual piece,

screw and pin, every piece of wood and leather, the total in one organ would approximate a million pieces.

The more one studies the construction of a pipe organ, the more wonderful it appears that so intricate and delicate a mechanism can be so carefully assembled as to give service for a lifetime, with practically no attention or upkeep excepting the incidental tuning.

As in every other line of manufacture, it is only the organ that is built by a conscientious firm that will give uniform service for many years. A cheaply built organ is a source of constant annoyance, an honest product a source of inspiration and pleasure.

*Mary had a little lamb,
One day she clipped its tresses,
And found she had sufficient wool
For fifteen modern dresses.*



The Voicing Room

A Few Fundamentals in Cost Accounting

By J. V. MONTAGUE

Assistant Comptroller, Scovill Manufacturing Company

ONE of the avowed objects of the National Association of Cost Accountants is the education of its members in cost principles and in the application of those principles to cost requirements. It seeks to reach beyond this limited field and to spread its educational work among that vast number of non-members, men and women engaged in cost work for all kinds of business. It would go further than that and this chapter is going further, as it has allied itself to the Connecticut Manufacturers' Association and through that Association is placing before the owners of these businesses, who are the employers of the cost accountants, compelling reasons for the absolute need of good costs in all business. That progress is being made is evidenced by the success of the previous meeting and by the interest manifested by the manufacturers in the subjects so ably presented at that time by both Mr. Carney and Mr. Ward.

Cost accounting, while not a cure-all, is a remedy for the ills of business. It demands skill, accuracy and exactness but is not an exact science. It cannot be, inasmuch as business which brought it into being and which it assists but must follow, falls far short of being an exact science. The multitude and variety in manufactured products, even in a single factory; the constantly changing conditions in all the factories; the differences in equipment in concerns manufacturing identical products; the variations in physical layouts as well as in management policies, all operate to prevent

perfection in assembling and recording cost facts and impose on cost accountants the arrangement of systems to meet these seemingly irreconcilable impediments.

At the last meeting Mr. Carney strongly recommended the establishment of production

centers for cost purposes. He tells me that many manufacturers have responded, recognizing the value of his suggestions but that they are afraid of the expense entailed by refinements of this kind. They feel that they must meet the markets on price anyway, and that reasonably accurate costs are therefore all they require. The expense connected with any project should be the first consideration. Certainly it is a factor in the success or failure of a cost system. I would call it the first fundamental. While a

cost system is primarily installed to obtain costs upon which to base safe and sane selling prices and to price the inventory correctly, yet a system pays its way chiefly as an aid to management. It saves by prevention, points out bad practices in factory operations, discovers unnecessary waste and unprofitable products. Therefore we should not measure its cost by only one of the good results which may be attributed to it.

Since I have mentioned the cost of a cost system, it is not amiss to speak a word for the chief cost accountant, the man responsible for the expense of the cost department.

I believe that we all agree that cost accounting is a necessity, that competitive business as it is conducted today demands it. Convinced

Mr. Montague's address was given at the second of a series of meetings of cost accountants and manufacturers, arranged jointly by the Hartford Chapter of the National Association of Cost Accountants and the Manufacturers Association of Connecticut, in an effort to promote wider use of intelligent cost accounts in order that unintelligent competition may be reduced.

Other meetings will follow and an effort will be made to present to readers a sufficient number of articles on this subject to cover all phases of the discussions.

of this fact and bearing in mind the essentials promoting its success, the greatest care should be exercised in the selection of a man to head the important and dignified department of cost accounting. The right man may well be more important, more valuable to his organization than the purchasing agent, the sales manager, sometimes even than the factory superintendent or some other high priced executive, any one of whom is usually paid a better salary. In a few of the more progressive companies where good cost systems prevail, the cost accountant is recognized. He has passed beyond the lowly stage of a cheap clerk and occupies a dignified and well paid position. But in companies where it is thought that cost accounting is a lot of theoretical nonsense, where it has not been tried out and given a chance to prove its value and where some one in authority relies solely on some special or peculiar intuition for his costs, there the cost man is a mere timekeeper and remains in that position.

In a recent conversation with the national secretary of the Cost Accountants Association, I was told that one of the large corporations of this country had paid last year to its accountant a bonus of \$20,000 in addition to a salary of more than \$30,000.

Many cost systems have failed to function properly. Oftentimes the fault is in the system but more often the failure can be attributed to an overwhelming desire of some self-styled cost specialist to accomplish the impossible. He sells his services to the management and then descends upon the organization with a full crew of clerks, some good and some not so good, and starts to work on the installation of an elaborate system. At first he is a destructionist, throws out all or the greater part of the cost routine then in operation, and sometimes many of the clerks on the job. Then he tries to rebuild. His scheme may be sound; it may be that he has hit upon the very system the company needs. He works hard but he fails. I have seen that thing happen three times. Many of you have seen the same thing. Why does he fail? In the three instances I have in mind, they could not or did not obtain the full cooperation of the company employees and they spent too much money. Had those same men entered those companies minus their own crews, installed the systems with the help of company employees, with good and well paid men at their head, they would not have failed.

Cost accountants are not made overnight. It takes years of study and training and hard work to develop one. The success of a system

depends on its fitness for the business and the character of the men who operate it. There is nothing more fundamental in cost accounting. Changes in factory conditions mean changes in the cost system. So do changes in business policy. Each change, of course, should be an improvement. When they come, only a good man can meet them. So if you have not a satisfactory system of costs and contemplate installing one, get a high class man to do the work, one who knows cost accounting and has a managerial point of view. Pay him a good salary, support him wholeheartedly, give him good tools in the way of office equipment but do not burden him with too many cheap and incompetent clerks, boys and girls just out of high school or schools of a lower grade, without accounting knowledge or ability to analyze figures. If you are not cost accountants, and those of you who have inadequate systems or no systems at all are not cost accountants, do not attempt the installation of a system yourselves. If you do, you will find yourselves in the predicament of a man known to me several years ago in the mining business. He was a West Point graduate, an engineer, who served in the army until he became a colonel and then resigned. Having previously invested successfully in mines, he entered that business as managing director of a company in which he was a large stockholder. He was one of those New York managers who have an office in that city and visit the mines, three or four thousand miles away, three or four times a year. While in his office he was not overworked. He busied himself for a time learning how to make a journal entry. Having mastered this part of bookkeeping after a week's study, he felt fully qualified to change a fairly good accounting system embracing the operations of mines and a reduction plant. So he paid the mines a visit and installed his system. He spent three months at the mines doing this work. What did he furnish his directors in the way of financial and cost statements? An illuminating report each month which was only a copy of all the journal entries made. There was no balance sheet, no profit and loss statement, nothing in report form indicating the cost of a single operation performed. Certainly that man's ignorance of costs was a menace to his company.

The next step that should be considered for successful operation of a cost system is office equipment. A progressive manufacturer is alert to all changes in factory equipment that will accelerate and cheapen production. Com-

petition compels him to discard and scrap machines that may have seen but little use and perhaps are in as good working condition as on the day they were bought. He does not hesitate to spend thousands of dollars every year in replacing good machinery with better machinery if he is convinced that better machinery can be had. The purchase of an accounting machine is often worth more to him, and will save him more money, than the purchase of a machine to be used on factory production, particularly if that machine belongs to the automatic screw machine group whose products, according to Mr. Carney and Mr. Ward, and to my own company's experience, are selling at demoralizing prices.

Statistics show that office employees in the United States, aside from agriculture, constitute the largest single occupational group in industry. They cost about \$12,000,000 a day. Were it not for some of the marvelous machines employed to assist them, that cost would be tremendously increased. It would be prohibitive and it would be impossible to meet present day requirements for cost, production and other statistical information.

The office must have its machines; they are absolutely essential. The product of the office is non-income producing. It has no sales value, while that of the factory is the thing sold, the revenue producer, upon which attention is centered, often to the exclusion of the savings which might be made by machines in the office. The office machine might save more money than the one in the factory can make.

About three years ago, the company with which I am associated purchased a certain machine for use in its cost office at a cost of \$2,000. That machine produced more and better information, and in six months time the savings in clerical help, stationery, etc., equalled the cost of the machine. After that time, its savings were profits. Again, two years ago, three machines, performing different functions from the one just mentioned, were purchased for use in the same office, at a cost of \$4,000. In four months time the savings had paid for the machines, the records presented a much better appearance, were less voluminous and

cumbersome, and contained far better and more useful information. Those four machines, costing \$6,000 are now saving at least \$15,000 a year or have an earning capacity of 250% per annum. A factory superintendent will have some difficulty in showing machines equalling that record.

At the previous meeting Mr. Carney described the elements of costs as being composed of the following:

Prime Costs

1. Direct material
2. Direct labor

Overhead Costs

1. Indirect labor
2. Operating supplies or indirect materials
3. Depreciation
4. Repairs and upkeep
5. Power
6. Heat, light, rent, etc.

While each of those elements is susceptible of further extension or expansion, each one is usually classified and arranged by departments in the order given. The first one is "direct materials." The ordering, the receiving, the handling of physical stock and the clerical work connected with the accounting for direct materials, properly belong in a discussion of inventory control.

That phase of accounting was presented at the February meeting, so I am not going to attempt a further discussion of it. It is an element of cost the value of which is generally well known unless a company engages in both mill and manufacturing operations. Then the problem is more complicated. However, under ordinary conditions, the cost of material is easier to allocate than is either direct labor or overhead. It might be said that direct labor is easy to handle. All that is necessary is to charge the wages paid to productive men to the jobs, or processes, or classifications on which they are working. It sounds simple in theory but practice develops many complications. I believe that the greater part of all manufacturing concerns have estimating departments, or departments where the cost of manufacturing all products is computed before operations on those products begin. The labor connected with every process in the fabrication of an article, with every operation

(Continued on page 16)



J. V. MONTAGUE



Courtesy Fairchild Aerial Surveys, Inc. and L. & H. Aircraft Corp.

AERIAL VIEW OF THE WILLIAMS BROTHERS MANUFACTURING COMPANY, GLASTONBURY

Williams Brothers have been manufacturers, since 1880, of a complete line of silver plated and nickel-silver flatware. In the foreground of the picture are the cutlery departments, power plant and machine shop. Nearer the center is the spoon division and the large modern building just beyond is used for packing and shipping. This is the sixteenth of a series of aerial views of Connecticut plants appearing each month in Connecticut Industry

Industrial News Around the State

BEAUTIFYING BRIDGEPORT

The Ramses Corporation, a New York concern, has leased a two-story building owned by the Remington Arms Company of Bridgeport and will manufacture perfumery, cosmetics, bath salts, etc. The building is on the east side of Bridgeport and contains about 25,000 square feet. The Ramses Company will bring 75 operatives from New York, it is said, and recruit the balance required from Bridgeport.

Floor space in another war building of the Remington Arms Company has been leased by the Holmes Products, Inc., organized to manu-

facture and distribute electric refrigerators and allied products.

NEW WORLDS RECORD ON NEW DEPARTURE BEARINGS

The White Triplex driven by Ray Keech at Daytona Beach, which set a new worlds' record of 207.55 miles an hour, was equipped throughout with New Departure ball bearings made at Bristol. Keech's first run, when his instruments showed 220 miles an hour, was thrown out because of the failure of a timing device to function. Disappointment was keen, but Keech went at it again with the grim announcement that he would show them but that the

timer had better be working, for he was not running for his health!

The Triplex, owned by J. M. White of Philadelphia, is a 36-cylinder, three-motored car, developing 1500 H. P.

ROBERT GAIR, MONTVILLE DIVISION

The Robert Gair Company has published a particularly good piece of direct mail advertising entitled *Gair Plants*, in which are pictured the Thames River Corrugated Case Division at Montville near New London, Connecticut, and the Piermont Fibre Container and Carton Division, Piermont, New York. The company's paper-making machines are capable of producing more than 1200 tons daily. Standardization and scientific plant control are the watchwords and of them the company says:

"There is one executive control, one formula for uniformity and one method of manufacture on standardized machinery. These two units, one specializing in corrugated cases and the other in solid fibre containers, are organized and equipped to the peak of efficiency. They concentrate on economical production, but not on cheapening the goods. The saving is one that comes from the fullness of the best mechanical energy and its intelligent direction. Our production manager does not take it out of the goods. He threw out the plant whistle that signalled start-up and shut-down and put in an electric siren to save the cost of pressure steam, a detail of saving which ramifies the whole manufacturing scheme. There is no multiplication of effort or duplication of processes. The last operation on corrugated cases and solid fibre containers is performed within five hundred feet of the dry end of the paper-making machines and then to the cars."

NEW COMPANY IN DANIELSON

Walter Anderson, formerly assistant treasurer of the E. H. Jacobs Manufacturing Company of Danielson, has formed a new company known as the Anderson Mill Supply Corporation. The new concern, of which Mr. Anderson is president, is now manufacturing loom strapping, lug straps and other mill supplies. In addition, supplementary lines will be handled, produced by other manufacturers, such for example as the product of the Norwich Belting Company.

It is the policy of the Anderson Company, as it has been the policy of the E. H. Jacobs Company, to buy Connecticut and New England-made products wherever possible. Mr. Anderson, who is one of the foremost exponents of the "buy at home" theory says, "We

are small, but hope to grow fast. We are trying very hard to use New England-made materials in our products and especially Connecticut-made materials. We are using and have today bought some textile goods made in a Connecticut mill."

HAWLEY HEADS BRIDGEPORT GAS

George S. Hawley, former vice-president and general manager, has been elected president of the Bridgeport Gas Light Company, succeeding Frank M. Travis who becomes chairman of the executive committee. Mr. Hawley, who came to the Gas Company as vice-president and general manager in 1920, was previously



GEORGE S. HAWLEY

general manager and counsel of the Bridgeport Manufacturers Association. He now holds the presidency of that organization and is also a director of the Manufacturers Association of Connecticut.

DeVer H. Warner was again named chairman of the board of directors and the other officers are: Howard E. White, vice-president; Robert A. Lewis, secretary and treasurer; Frederick C. Taylor, assistant treasurer. The directorate remains the same with the addition of Bradford G. Warner, son of the board's chairman.

AMERICAN CHAIN BUYS WESTERN CONCERN

The American Chain Company of Bridgeport has purchased the Wright Manufacturing Company of Lisbon, Ohio. The headquarters of the Wright Company will be moved to

Bridgeport but no manufacturing will be done in this state.

A. E. JENCKS

A. E. Jencks, well known financier and industrialist, died at the Biltmore Hotel, New York on May 23. Mr. Jencks, whose home was in Pawtucket, was a director of two Connecticut concerns, the Lorraine Manufacturing Company of Pawcatuck and the Ponemah Mills of Taftville.

FRANK H. LEE HONORED

Frank H. Lee, president of the Frank H. Lee Company of Danbury will be tendered a testimonial dinner in New York on June 14



FRANK H. LEE

by his friends and associates in the men's hat trade and allied industries. Mr. Lee is president of the National Association of Hat Manufacturers and has been prominent for many years in Connecticut industrial circles, serving at one time as a director of the Manufacturers Association of Connecticut. The committee in charge is composed of men well known in the hat trade, among them several from Connecticut. They are William V. Campbell, Philip April, John Cavanaugh, Nat Daniels, William J. Dixon, F. T. Joy, B. H. Kaufman, R. A. Linden, T. Wilson Lloyd, George MacLachlan,

R. C. Montgomery, P. F. Moriarty, I. Peles, Herbert Rabiner, B. F. Sargent, Jr., Frank Schoble, R. S. Tompkins, Robert J. Patterson and Robert J. Patterson, Jr.

ARC-WELDING STRUCTURAL WORK

All of the structural work on the new addition to the General Electric Company's plant at Bridgeport will be arc-welded instead of riveted. This is in conformity with the company's plan to use the arc-welding process in the construction of its new buildings, the Philadelphia plant having been the first to adopt it.

HARTFORD ELECTRIC LIGHT TO GENERATE POWER FOR CONNECTICUT COMPANY

The Connecticut Company has concluded negotiations for the purchase of power from the Hartford Electric Light Company for the operation of trolleys on the Hartford division. Negotiations have been under way for several months because of the high cost of operating and heating the cars through the Connecticut Company's own plant on Potter Street, where considerable difficulty has been experienced each year at freshet season.

The Hartford Electric Light Company will generate the required power at its Dutch Point plant.

The Bridge Builder

*An old man, going a lone highway,
Came at the evening, cold and gray,
To a chasm vast and deep and wide.
The old man crossed in the twilight dim,
The sullen stream had no fear for him;
But he turned when safe on the other side
And built a bridge to span the tide.
"Old man," said a fellow-pilgrim near,
"You are wasting your strength with building here;
Your journey will end with the ending day,
You never again will pass this way;
You've crossed the chasm deep and wide;
Why build you this bridge at even' tide?"
The builder lifted his old gray head —
"Good friend, in the path I have come," he said,
"There followeth after me today
A youth whose feet must pass this way,
This chasm that has been as naught to me,
To that fair-headed youth may a pitfall be;
He, too, must cross in the twilight dim —
Good friend, I am building the bridge for him!" — Joyce Kilmer*

Industrial Preparedness in Connecticut

By COLONEL B. A. FRANKLIN

Chief, Bridgeport Ordnance District

THE annual meeting of the Bridgeport Ordnance District will be held in Hartford on June 15 and will be attended by some 110 reserve officers and a number of manufacturers from the Bridgeport District, which comprises Connecticut and western Massachusetts.

The meeting is of greater interest to the citizens of the United States, and to industry, than may be generally understood.

Whatever may be thought about America's part in the last war, it is certainly true that while we were in the war for a year and a half, and spent billions of dollars, no commensurate proportion of the ordnance material required by our army was ever made available for its use. It did not arrive.

After the war a thorough analysis of the situation made it very clear that this was primarily due to unpreparedness, and that unless a whole program of preparedness was properly made up in advance, centers of manufacture sought out, and all details worked out as completely as possible, the essential delay and slowness in getting into production on articles almost entirely foreign to the usual industrial lines would prevent America from properly supplying the fine troops which it could unquestionably raise, with proper ordnance supplies. As a matter of actual fact, our troops fought the last war with French and English munitions.

In 1920, therefore, a wise Congress passed the National Defense Act creating the office of Assistant Secretary of War in charge of Industrial Preparedness, with a definite instruction to see that in any case of another emergency, America was prepared industrially, as it undoubtedly is from the point of view of

morale and man power. It was not an Act of aggression, but an Act of insurance.

Certainly no one wants another war, but experiences in the last show the utter folly of permitting conditions to arise, because of which a great and rich country like America is unable to properly defend itself and its policies.

The Assistant Secretary of War in charge of Industrial Preparedness, gathered together experienced officers, who for six months worked intensively on a supposed future emergency. Imaginary units up to 5,000,000 men to be prepared over a course of two years were devised. For these units there was worked out definitely an amount of supplies in all of the supply branches of the army, including the aviation, quartermaster, the medical and the ordnance. Naturally, the ordnance was the most important from this point of view, because it of necessity used the least commercial products. The country was divided into fourteen districts

each of which has a district chief with reserve officers, and a regular army officer as executive assistant.

The ordnance supplies needed for some future emergency, based on our experience in the last war, have been set down in definite units, and tentative contracts sent, according to the possibility of manufacture, to each of the fourteen districts.

It is the duty of the district when it receives these statements of necessity, to find contractors who, in case of another emergency, would be able to proceed immediately with manufacture, instead of waiting as in the last war, until after war was declared and wasting anywhere

(Continued on page 22)



COLONEL B. A. FRANKLIN

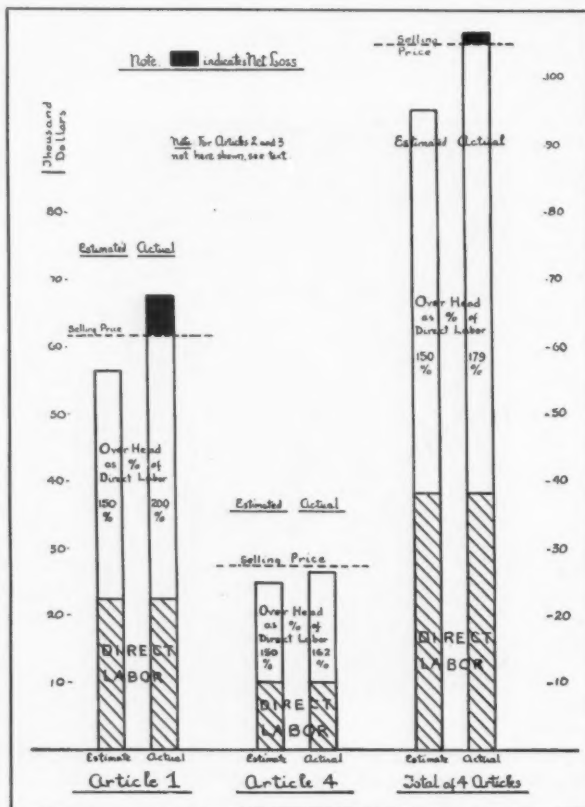
A FEW FUNDAMENTALS IN COST ACCOUNTING

(Continued from page 11)

through which it passes and with every conceivable thing which happens to it before it is turned into a finished piece of goods, is collected and priced at an estimated figure. When operations on that article start in the factory, only the wages included in the estimate as a part of the cost of that article, and no more, should be charged as the direct labor cost of the article. Following the incidence of operations, timings should be made on each operation, estimates should be revised, then they become standards. The cost of any operations omitted from the estimate or standard because not foreseen; overtime costs and the cost of duplicate sets of tools due to customers' demands for accelerated production; the cost of damages occurring somewhere in its movement through the factory or to some unskilful performance; and the cost of any work unanticipated at the outset, should be charged to special overhead accounts or accounts designed to show extraordinary overhead items, even though the men who performed any one or all of these operations are classed as producers. If that is the procedure outlined for the cost departments, and to my mind it is the correct procedure, some difficulties will be encountered in correctly distributing direct labor. If defects are discovered in the article after it has been assembled from two or more parts, and if to repair it, it is necessary to break down that assembly and place these parts back into reg-

ular manufacturing channels where more of the same work, perhaps emanating from the same order, is in process, it takes a perfect production control method and a 100% time-keeper to avoid confusion in the records. Not many concerns have either. Presented with difficulties of that kind, and that is only one of several which might be enumerated, it is readily seen that correct labor distribution is not an easy accomplishment. Some cost accountants would attempt to avoid the difficulty

by charging all these additional costs to direct labor. If that is done, of course more labor gets into costs than called for in the estimate, and the selling price is based upon the estimate. On the other hand, a lower cost in overhead is recorded. The increased labor cost is never compensated by the decrease in overhead, as the additional costs were not contemplated either in the labor or overhead costs when the selling price was fixed. Costs would continually exceed the estimate in labor but the overhead would be lower thereby reducing the overhead rate and thus preventing the establishment of a selling price based on an approxi-



ESTIMATED PROFIT AND ACTUAL LOSS
due to use of undistributed department overheads

mately true cost. Suppose that the direct labor on an article is estimated to cost \$1; that the overhead rate established by a practice which includes the charges for additional operations, overtime, reworking, etc., is 150% and that the material cost is \$1. The estimated total costs of that article would be \$3.50. Now suppose that all of these additional costs are charged to direct labor and that this extra cost is 10¢. That, we will say, is the common practice of a factory. The costs would

then show direct labor to be \$1.10 and overhead to be \$1.40 or 127.3% of the direct labor costs. The 10¢, however, is regarded as exceptional and unlikely to ever occur again, but the overhead rate of 127.3% and not 150% is the rate given to the sales department and there used in pricing future orders. The additional costs will never be recovered, future estimates will be too low, so will selling prices.

Two factories compare overheads. One uses the first method and shows an overhead rate of 150%, the other follows the second method and is twenty-three points lower in the overhead rate. Apparently the second factory operates more efficiently than the first, but makes less money, and wonders why. There is a better chance of recovering costs through sales by following the first method, particularly when it is known that an estimator cannot anticipate carelessness or unskilfulness in the operators, or know to a certainty that the expected operations predicted by the engineering department will eventuate without change or deviation.

That example illustrates the difficulties encountered in distributing labor. It also shows the effect that a departure from a standard method of procedure has on the overhead rate. Had I used the productive hour as the base for overhead distribution, the result would have been practically the same.

Mr. Carney contends that setting up overheads by production centers or sub-departments is slightly if any more expensive than doing the same work by departments. I fully agree with him. It means a few more sub-totals with no radical change in a cost system where departmental overheads are used.

A company may have a press room under one foreman. In this room, no doubt, there is a wide variety of presses for blanking, piercing, forming, etc. We do not advocate a production center for each make or kind of press, but we do believe that experience combined with common sense will enable one to group these machines into a few classes where the known overhead of each group is similar in its relation to the direct labor costs of the same group. Each subdivision is termed a production center to which direct overheads are charged. Each production center shares the press room general charges. It is an expansion of the departmental overhead idea having a two-fold purpose, to produce more accuracy in cost accounting and to localize sore spots. A bad practice is half cured by its discovery.

As an illustration of the dangers that lurk

in the background of a business using one general overhead when it is possible to departmentalize the factory, take the following example:

A manufacturer has four departments in his factory. He produces four different articles. His cost system gathers overhead costs into one department and may or may not show the various items of indirect labor, operating supplies, etc., making the total. His direct labor is distributed correctly to the four products made. He finds that at the end of a given period he has spent \$25,000 in the operation of his factory, divided in the following manner:

Article No. 1	Direct Labor	\$2,250.00
" No. 2	" "	4,200.00
" No. 3	" "	1,550.00
" No. 4	" "	2,000.00
Total Direct Labor		\$10,000.00
Overhead		15,000.00
		<hr/> \$25,000.00

If direct labor is the base for the application of overheads, his overhead rate is 150%. Suppose he uses that rate in calculating his costs. It is the only rate he has, so the supposition is natural. Purposely omitting any consideration of selling and administrative expenses in order to simplify the illustration and assuming that his selling prices have been so set that a net profit of 10% on his factory costs is expected, he is justified in the belief that he is making progress. He sells in a year's time 1,000,000 pieces of article No. 1, 100,000 pieces of article No. 2, 100,000 pieces of article No. 3 and 500,000 pieces of article No. 4. His expected profits of \$9,562.50 are divided among the articles as follows:

	Pieces	Cost	Selling Price	Profits
Article No. 1	1,000,000	\$56,250.00	\$61,875.00	\$5,625.00
" No. 2	100,000	10,500.00	11,550.00	1,050.00
" No. 3	100,000	3,875.00	4,262.50	387.50
" No. 4	500,000	25,000.00	27,500.00	2,500.00
		<hr/>	<hr/>	<hr/>
		\$95,625.00	\$105,187.50	\$9,562.50

He has every reason to believe that he is making money. His figures prove it and "figures do not lie." They lull him into a state of complacency and satisfaction and he thinks of expanding his business and thereby enjoy more profits. But out of the accounting department comes a statement showing that he has lost \$1,562.50. He cannot understand it and does not believe it until an inspection of his

does not believe it until an inspection of his balance sheet shows him that his assets have dwindled by an amount exactly equalling his loss. He is sore and depressed. He thought he was doing well and finds that he is headed for bankruptcy. In desperation he hires Jim Carney to solve his problem. Jim analyzes the products by processes of manufacture, breaks down the factory costs into four departments or production centers and demonstrates the value of practical accounting in that business by presenting a report illuminating but astounding to that manufacturer. This report shows that Dept. A is equipped with automatic machinery, requiring but few men in its operation and therefore developing a high overhead rate. Dept. B is equipped with a class of machinery demanding much more labor to operate. Consequently the overhead rate here is lower than in Dept. A. Dept. C has a still lower overhead rate, being a room where sub-assemblies are performed. Dept. D is a final assembly room where the chief expense is labor and has the lowest overhead rate of any of the four departments. The operating costs of these four departments according to Jim's report are as follows:

	Dept. A	Dept. B	Dept. C	Dept. D	Total
Direct Labor	\$1,000	\$5,000	\$1,000	\$3,000	\$10,000
Overhead	4,000	7,500	1,250	2,250	15,000
	\$5,000	\$12,500	\$2,250	\$5,250	\$25,000
Overhead Rates	400%	150%	125%	75%	150%

Article No. 1 passes through Depts. A, B, and C and is a finished article without having to touch Dept. D. Article No. 2 passes through Depts. B, C and D. There is no work required on it in Dept. A. Article No. 3 passes through Depts. A, C and D. It travels from the room with automatic machinery to the assembly rooms. Article No. 4 passes through Depts. A, B and D. It skips the sub-assembly room. Applying the overhead rates developed for each department to the direct labor furnished by each of those same departments on each article, the following costs appear:

ARTICLE NO. 1 (1,000,000 pieces produced)					
	Dept. A	Dept. B	Dept. C	Dept. D	Total
Labor	\$500	\$1,250	\$500		\$2,250
Overhead	2,000	1,875	625		4,500
	\$2,500	\$3,125	\$1,125		\$6,750

ARTICLE NO. 2 (100,000 pieces produced)					
	Dept. A	Dept. B	Dept. C	Dept. D	Total
Labor		\$2,500	\$200	\$1,500	\$4,200
Overhead		3,750	250	1,125	5,125
		\$6,250	\$450	\$2,625	\$9,325

ARTICLE NO. 3 (100,000 pieces produced)					
	Dept. A	Dept. B	Dept. C	Dept. D	Total
Labor	\$250		\$300	\$1,000	\$1,550
Overhead	1,000		375	750	2,125
	\$1,250		\$675	\$1,750	\$3,675

ARTICLE NO. 4 (500,000 pieces produced)					
	Dept. A	Dept. B	Dept. C	Dept. D	Total
Labor	\$250	\$1,250		\$500	\$2,000
Overhead	1,000	1,875		375	3,250
	\$1,250	\$3,125		\$875	\$5,250

TOTAL ALL FOUR ARTICLES					
	Dept. A	Dept. B	Dept. C	Dept. D	Total
Labor	\$1,000	\$5,000	\$1,000	\$3,000	\$10,000
Overhead	4,000	7,500	1,250	2,250	15,000
	\$5,000	\$12,500	\$2,250	\$5,250	\$25,000

When these costs are applied to the pieces sold and the income from each article sold set alongside these costs, quite a different result from that expected is revealed:

	Pieces Sold	Cost	Selling Price	Profit or Loss
Article No. 1	1,000,000	\$67,500.00	\$61,875.00	\$5,625.00
" No. 2	100,000	9,325.00	11,550.00	2,225.00
" No. 3	100,000	3,675.00	4,262.50	587.50
" No. 4	500,000	26,250.00	27,500.00	1,250.00
		\$106,750.00	\$105,187.50	\$1,562.50

Instead of a profit of \$5,625 on article No. 1, there was a loss of exactly that amount, a difference of \$11,250. Article No. 2 more than doubles the expected profit, jumping from \$1,050 to \$2,225. An expected profit of \$387.50 on article No. 3 turns out to be just \$200 more than that amount, while article No. 4 can show but 50% of the expected profit.

That man's troubles were due to ignorance of costs, ignorance of the correct method of using underlying and fundamental principles applicable to any line of industry.

Whether you are running a mine, a machine shop, a brass mill, a screw machine factory, or any other kind of factory, you are confronted by the same accounting problems. Methods of recording details will differ, the names of your accounts will differ, and you may have operations to perform in one business never heard of in the others. Still the same accounting principles apply alike to all. You may have grown up in your factory; every operator, every machine, every operation may be known to you from beginning to end; you may have swept the floors and by progressive stages passed through every department until now you are the directing head, possessed with a fund of knowledge concerning your business that no other man has, but unless you know your costs you do not know your business.

Congress at a Glance

News of the Month in Washington

James Augustus had an axe that he wanted for to grind,

So he hied him down to Washington to see what he could find.

He interviewed his Senators and his Representatives

And he learned where each committeeman and grindstone expert lives.

He sought each sage adviser and button-hold him there

And was he downcast? Not a bit! When he had to take the air.

He knew he had accumulated a vast array of facts,

But James Augustus lived to learn, he'd also lost his axe!

Strictly Anonymous.

Speaking of Boulder Dam, it has not yet come up for final action at the time of going to press.

Muscle Shoals

The marked growth at this session of the tendency to further inject Government into the realms of private business, cannot fail to arouse very real apprehension among business men everywhere. Two outstanding examples have been the Navy Construction bill, discussed in the last issue of *Connecticut Industry* and the attempt of an exhausted group to somehow, somehow, anyhow or anyway, get rid of Muscle Shoals. The Morin amendment or substitute as it might more properly be called was discussed in a letter to Connecticut Senators and Representatives by E. Kent Hubbard, president of the Association.

Mr. Hubbard said: "Among our Connecticut industries we have several, members of our Association, engaged in the manufacture of fertilizer. In their behalf as well as in behalf of all our industries whose industrial structure we believe to be threatened, I desire to protest the action, apparently seriously contemplated by the House Committee on Military Affairs, to further inject the Government into competition with private industry through passage of the Morin amendment to S. J. Res. 46, in effect a substitute for the Norris measure, passed by the Senate.

"The provisions of the Morin substitute are so drastic, so destructive to every principle involving the right of private industry to exist and to operate under legitimate competitive conditions that this measure can be interpreted to mean only one thing—the willingness of the committee to pass legislation which will permit the Government to enter the fertilizer field under conditions so abnormal, when gauged by the standards of private business, that that same private business might as well close its doors now as to attempt to compete.

"The development of the fertilizer industry in the last few years has been a remarkable demonstration of what individual initiative and capital can accomplish in the fields of research and production. If the Government desires to assist further in such development, which we assume was originally its intention, it is diverging from that pathway over many a circuitous route. Certainly a Government subsidy, receiving free of charge properties for which taxpayers originally paid \$140,000,000, operating on \$10,000,000 of public funds for which no interest shall be paid, selling at cost under a distinctly preferential plan and distributing as high as 15% of its production free of charge is not a plan conducive to the investment of private capital nor to the ultimate satisfaction of the taxpayer any more than the industrialist.

"The situation is, as I have said before, not a pleasant one to contemplate and we shall very sincerely appreciate your assistance in preventing the passage of the Morin substitute."

Mr. Glynn of Connecticut, a member of the House Committee on Military Affairs, which reported out the Morin amendment, was one of three members of that committee to present a minority report and to oppose the bill on the floor of the House.

Something Coming In

The Senate has passed the Bingham bill authorizing the payment to Connecticut of \$559,373 for expenditures made during the War of 1812. The measure was referred to the House Judiciary Committee.

Connecticut River Channel

The House Rivers and Harbors Committee has announced that it will report favorably on the bill providing for a channel 100 feet wide and 12 feet deep between Holyoke and Hartford. Action on the bill will be postponed until the next session, however.

Reapportionment Bill Lost

Mr. Fenn's reapportionment bill went down to defeat by a vote of 186-165 after a strenuous fight. The measure proposed to defer reapportionment until after the 1930 census but to then make it automatic so that such a situation may never again arise as exists at the present time with Congress ignoring the Constitutional requirement that there shall be a reapportionment in the House after each census. Connecticut is at the present time entitled to one more representative and there are some Congressional districts with a population of more than one million while other districts have less than 150,000.

Resale Price Bill Reported Favorably by Sub-Committee

The Kelly resale price bill (H. R. 11) has been reported favorably to the House Interstate and Foreign Commerce Committee by a special committee which had the measure under consideration and of which Mr. Merritt of Connecticut was a member. The bill would permit the vendor "to sell trade-marked or branded articles under agreement that the vendee will not resell except at a stipulated price and provides that any dealer to whom the vendee may resell will not in turn resell except at a stipulated price." Contracts must relate only to articles which are in "fair and open" competition and the rights of the vendee would be protected on lowered prices under certain conditions as well as by providing that suit could not be brought at inconvenient distance. At the conclusion of its report the sub-committee says:

"The above considerations seem to indicate that the legislation will not enable manufac-

turers or dealers to charge unfair prices but will tend to diminish unfair competition and thus in the end benefit the public, and that it will place the smaller manufacturer of trade-marked articles more nearly on an equality with his larger competitors."

To Study Unemployment

S. Res. 219 adopted by the Senate May 19, directs the Senate Committee on Education and Labor to investigate the causes of unemployment and to report on or before February 15, 1929. The committee is to ascertain the

relation to unemployment relief of (a) the continuous collection and interpretation of statistics of employment and unemployment; (b) systems of public employment agencies, Federal and State; (c) systems of unemployment insurance or other unemployment reserve funds, Federal, State, or private; (d) curtailed production, consolidation, and economic reconstruction; (e) public works to stabilize employment; and (f) feasibility of cooperation between Federal, State, and private agencies with reference to (a), (b), (c), and (e).

NOTICE

Arrangements have been made by the Association, under the direction of its Committee on Finance and Taxation, to supply each member with a copy of the new tax law immediately upon its passage. The pamphlet, prepared by experts, is a valuable publication as it contains not only the new law, but also a comparison with previous laws, arranged for quick reference. A copy will be mailed to each member within one week after the new bill passes.

ibility of cooperation between Federal, State, and private agencies with reference to (a), (b), (c), and (e).

Anti-Paint Spraying Bill

Senator Copeland has introduced a bill (S. 4186) which would forbid the use except under certain prescribed conditions of paint spraying machines where Federal jurisdiction applies. While measures to protect general health conditions such as this might appear to be on the surface, could rouse no objection, a careful perusal of the bill would indicate that its purpose is more far-reaching and possibly intended to prevent or discourage the use of paint spraying machines. Moreover, there seems to be involved a question of whether Congress can control the use of such devices by common carriers by rail or water, as it is proposed to do.

Postal Bill Approved

Both the Senate and House have approved the conference report on the postal bill (H. R. 12030) reducing rates by over \$16,000,000 annually.

Taxation Department

*Timely News on Federal and State Tax Matters Will Appear in This Department Each Month
(Prepared for the Association by Hadfield, Rothwell & Soule)*

Emma Cone vs. The New Britain Machine Company on "Doing Business Within a State"

The question of "doing business" within a state, which brings with it liability for taxation and burdensome reporting duties and subjects a company to the possibility of process being served in that state, has been a moot question with corporations for a considerable period.

The United States Court of Appeals, Sixth District, has reversed a decision on appeal from the District Court of the United States, Southern District of Ohio, Western Division, in the case of Cone vs. The New Britain Machine Company.

The defendant, a Connecticut corporation, with factory and executive offices in New Britain, Connecticut, manufactures in Connecticut and sells throughout the United States multiple spindle automatic screw machines and chucking machines intended to be operated at high efficiency by relatively unskilled workmen. The company has no office, factory or repair shop in Ohio; machines are manufactured and sold at New Britain and shipped f. o. b. cars at that point to points in Ohio and other states. Its employe, who was served with the summons, resides in Ohio and is its sales representative in that state. His sole duty is to solicit orders for machines and show the purchasers thereof how to use them; he does not make or conclude contracts, collect payments or adjust disputes as to contract prices. The New Britain Machine Company also employs an expert mechanic, who resides in Columbus, Ohio, and whose duty it is to visit the plants of the Ohio customers and adjust the machines so that they may be operated at their maximum efficiency. He is known as a demonstrator, but is, in fact, a service man; he has no authority to make contracts, adjust disputes or do anything except install machines and after they have been installed and demonstrated, make minor repairs or adjustments for which he is paid by the New Britain company.

This action arose from the question whether or not the work this demonstrator performs is "doing business" in that state for the purpose of service of process. The lower court held that it was not. It appears that the de-

fendant maintains an expert demonstrator in Ohio, who periodically visits the plant where defendant's machines are used and adjusts and repairs them so that they will render the maximum service for which they are capable. This service is given whether they were sold by the defendant to the plant, or acquired second-hand, and also regardless of when installed; that is, after they have been installed, successfully tested, demonstrated and payment received. What defendant's demonstrator does is to keep the machines in order after they have been installed, tested, demonstrated and paid for, whether they were sold directly from this company and regardless of the time they were in use. This additional work was held by the Court of Appeals to be "doing business" within the state.

A dissenting opinion was rendered by one of the Judges of the Court of Appeals, but the majority opinion was sustained by the United States Supreme Court, a writ of certiorari being refused. The dissenting judge was of the opinion that the work of the service man, which in the majority opinion of the court took the business of the company out of the category of interstate commerce, was incidental to the purchase of the machine and he failed to see how it could make any difference whether this advice was given before or after the delivery of the article sold. An excerpt from his opinion follows:

"Upon the whole, it seems to me that the giving of service of the character and to the extent here shown should be treated as merely incidental to the defendant's general business of manufacturing and selling its automatic machinery in interstate commerce. In the language of Mr. Justice Holmes: 'From the point of view of commerce, the business was one affair' (236 U. S. 697)".

If the same problem should arise in another Circuit, it is possible that the dissenting Judge's opinion may be sustained and in this case, the case could be carried to the United States Supreme Court with possibility of reversal. As matters stand at present, however, manufacturers giving service should be very careful as to how this service is given, if they wish to avoid the act of "doing business in a foreign state."

INDUSTRIAL PREPAREDNESS IN CONNECTICUT

(Continued from page 15)

from six months to one year.

Once a contractor has accepted a tentative contract for a particular article, he is asked definitely to set down the operations necessary in the course of manufacture, machinery, tools, fixtures, jigs, materials desired, components desired, and in fact, all of those things which will give a very definite factory plan, from which a prompt start could be made. Happily, the manufacturers, both from the point of view of patriotism and from the point of view of practical common sense, have seen the value of this plan and are heartily cooperating.

Such a program should involve the support of all citizens, who will understand that America, among all nations probably the least desirous of going to war, still understands that while human nature is as it is and the political situation of the world as it is, cannot afford to be unprepared if an emergency should arise. That America shall be prepared is merely to stave off the danger of such an emergency. That it shall be prepared means the saving of billions of money and thousands of lives in case of another emergency.

The happy feature about this whole industrial preparedness, is that it is operated at a very small expense to the United States Government, because it is a voluntary operation on the part of a large number of reserve officers, and of splendid manufacturers.

It is a movement that needs general understanding and patriotic support.

Aerial Views of Connecticut Plants

The Association has been indebted for some time to the Fairchild Aerial Surveys, Inc., of New York City, for the series of aerial views of Connecticut plants appearing regularly in *Connecticut Industry*. The L. & H. Aircraft Corporation of Hartford, distributors of the

Fairchild planes, have taken over the photographic work for this section and through their courtesy and co-operation, together with that of the Fairchild Aerial Surveys, an additional set of views of members plants has been secured, all taken in recent flights. The views are particularly clear, with a wealth of detail and one will be shown each month, in line with Association efforts to arouse a greater interest in aviation matters. The Association believes thoroughly in the development of commercial aviation, recognizing that Connecticut's future will be largely affected by it. Business enterprises, like people, seek a sympathetic audience. If Connecticut wants the airplane industry and those allied to it, Connecticut must develop a greater "air mindedness."

Research in Developing Foreign Trade and Advertising

The third and fourth of the research studies made by the Metropolitan Life Insurance Company for the New England Council have appeared in printed form. The third, *Developing Foreign Trade*, emphasizes the particular need of research in overseas selling and the establishment of foreign markets and cites numerous cases of methods employed in securing information, utilization of outside agencies, record keeping, etc. Among the several firms cited, particular reference is made to the Yale & Towne Manufacturing Company of Stamford.

Report number four, an especially able and valuable one, has to do with *The Use of Research in Advertising*. Among the concerns named as outstanding examples of the advanced use of research are several from Connecticut, namely, the Sessions Clock Company, Forestville; P. and F. Corbin Company, New Britain; the Fuller Brush Company of Hartford; and the American Brass Company of Waterbury.

Copies of any or all of these reports will be supplied gratis upon request of the Association. The previous reports were discussed in the May issue and will also be sent on request.

THE MINOTTE E. CHATFIELD CO.

—NEW HAVEN—

WRAPPING PAPER and TWINE MERCHANTS

*We carry a stock as
complete as can be
found in New England*

298-312 STATE STREET

Phones Colony 7420, 7421, 7422

DIVIDEND

NEVER LESS THAN 20%
ON COMPENSATION INSURANCE



To Owners of Commercial Cars

The Engineering Department of the American Mutual has studied the operating condition of truck fleets that have operated as badly as 5,000 miles per accident. By instituting systems of safety American Mutual Engineers have improved some of these records to the extent that they now operate as high as 150,000 miles per accident. Let us send you one of our booklets the "Automobile" and "The Man at the Wheel"



TWENTY-TWO percent is our latest dividend rate—the American Mutual has paid a yearly dividend to policyholders of never less than 20% of the premium . . . policyholders have paid a rate which is standardized for all companies and have received not less than one-fifth of the cost of their insurance.

In addition you are assured a service that has pleased our policyholders to the extent that 96% renew with us each year. The American Mutual is the oldest, largest and strongest mutual liability insurance company in the world. Let us send you complete information . . . just fill in and mail the lower part of this page.

AMERICAN MUTUAL

To the American Mutual Liability Insurance Co.—
Please send me full information about your Service
Security and Saving.

Name _____

Address _____

Write to one of our Connecticut offices: 1188 Main Street, Bridgeport or
226 Pearl Street, Hartford.

BLOWERS

AND

BLOWER SYSTEMS

OF ALL DESCRIPTIONS

Get the benefit of our forty years experience in manufacturing and installing exhaust systems. Our engineers will submit designs and estimates free of charge. Let us help solve your problems.

STERLING BLOWER CO.

Hartford, Conn.

NEW YORK —Branches— PHILADELPHIA

Members of

*Manufacturers Association of Connecticut
Manufacturers Association of Hartford County
National Association of Manufacturers*

EMPLOYERS

Why not find the *right* man for that responsible position? We work for the EMPLOYERS, finding the best available men for executive, sales and technical positions, paying from \$3,000 to \$20,000. Confidential correspondence invited.

WILLIAM H. SHUMWAY, Inc.

Personnel and Vocational Counselors
176 FEDERAL STREET, BOSTON—Liberty 4232-4309

PENROSE R. HOOPES

Consulting Mechanical Engineer

SPECIAL AUTOMATIC MACHINERY

for

HIGH PRODUCTION INDUSTRIES

Design Consultation Reports

64 Pearl St. Hartford, Conn.

Invited to Attend Cost Convention

The annual convention of the National Association of Cost Accountants will be held at the Commodore Hotel, New York, June 11 to 14. A number of plant visitations have been arranged for attendants at the conference.

Members of the Manufacturers' Association of Connecticut are welcome, and the Association will be pleased to send further details to any manufacturers interested.

M.A.C.'s Views on Current News

Headline — "Women gaining weight require more cloth." Our observation is that all that will be required is longer and bigger silk stockings.

* * *

Physician says, "Lungs should be developed." Must want a new race of Congressmen.

* * *

Wife, "I just cannot go. I haven't anything to wear." And those who saw her going later believed it.

* * *

Headline — "Raphael sold for \$731,000." Angels come high these days.

* * *

Headline — "Prince Carol ordered to leave England." Why not let him take it with him?

* * *

Headline — "Bishop McAuliffe supports Mt. Sinai." Yet we thought Atlas did a pretty good job.

* * *

These shootings by dry agents leads us to believe that the game laws ought to be revised.

* * *

Headline — "Serious shortage in tin." That is why Henry made a lady out of "Lizzie."

* * *

The new movie "Dressed to Kill" is by a Chicago author.

* * *

Sinclair Lewis is coming back to Connecticut to live. It's wonderful what marriage does for a man.

* * *

No wonder the British got such a raw deal when they landed in '76. Mayor Walker and Grover Whelan were not there to meet them.

* * *

Advertisement — "Two-thousand silk rajah dresses, \$4.85." No wonder they have to make them short.

* * *

Headline — "Poppy Week." Is this to take the place of "Father's Day?"

Transportation

LIGHTERS AND CAR FLOATS

Many members who are using lighters and car floats are yet unfamiliar with the difference between the two and the type of service which each renders. The photographs on this page will serve to illustrate this point.

A lighter, shown in the upper photograph, is a strong, heavy, flat-bottomed boat, *not equipped with railroad tracks*, used for transporting freight in harbors or on other bodies of water, and across streams. Some are open, flat-deck affairs, equipped with derricks or power hoists for handling heavy cargoes. Others have built-up enclosures like the one illustrated, with side doors and removable covers. Some also have decks and very large hatches with light removable covers. Lighters are very generally used in the important harbors of the world for inner harbor communication, and are usually designed to be towed, although the use of large ones propelled by steam and motor is becoming common.

A car float is a flat-bottomed craft equipped with tracks upon which cars are run from the land by means of a float bridge, affording an interchange and transfer of rolling stock across streams or other bodies of water where bridges or tunnels are impracticable. Such a car float is shown at the bottom of this page.

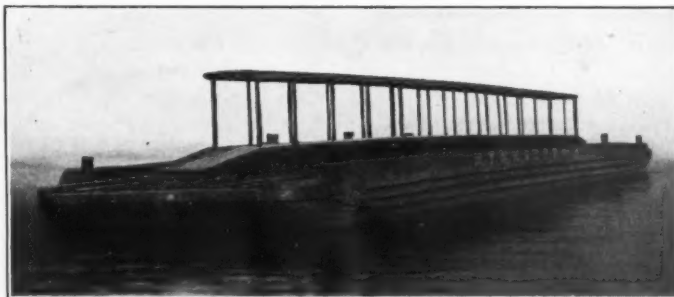
Through the use of car floats, the wharves

and waters adjoining New York, Hoboken, and Jersey City are made to serve the same purpose as hundreds of acres of switching yards, and cars are transferred from one railway to

another or to various loading or unloading piers. The car floats used in New York Harbor, generally speaking, are designed to be towed and have no means of self-propulsion, although large steam or motor propelled car-transfer boats and car floats are in operation across Lake Michigan.



A Lighter



A Car Float

BANQUET FOR TRAFFIC STUDENTS JUNE 16

Arrangements have been completed for a banquet to be held by the Association on June 16 at the Pine Orchard Country Club in honor of the 105 students enrolled in the courses in traffic management recently completed in Bridgeport, Hartford, New Britain, New Haven and Waterbury. Executives whose companies were represented in these classes are being urged to attend the banquet.

Among the speakers for the evening are J. J. Hickey of Washington, D. C.,

transportation counsel for the Association and formerly attorney for the Interstate Commerce Commission, and educational directors from the various Y. M. C. A.'s where the courses were held, as well as prominent traffic men. In recognition of the efforts of these students certificates of proficiency will be conferred upon

them by the Traffic Committee of the Association.

READING RAILWAY DAY AT NEW BRITAIN

The Traffic Association of the New Britain Chamber of Commerce held a luncheon and golf outing at the Shuttle Meadow Club, New Britain, on Tuesday, May 15, the object of which was to promote a deeper interest in and wider knowledge of transportation problems and to extend personal acquaintance and friendly relations between carriers and shippers. About one hundred guests were present, consisting of traffic managers of the various industries in the State of Connecticut.

Edgar D. Hilleary, vice president and Harry C. Stauffer, freight traffic manager, who were guests of honor from the Reading Railway, gave brief talks. There were also addresses by J. A. Droege, general manager and George M. Wood, freight traffic manager of the New York, New Haven and Hartford Railroad.

TRAFFIC DISCUSSION CLUB OF NEW HAVEN

The New Haven class in Traffic Management has formed a Traffic Discussion Club which will hold regular get-together meetings throughout the summer for discussions on various transportation subjects.

The two students elected as officers of the club, were James Smith, president, and E. Clayton Thomas, secretary and treasurer.

E. Kent Hubbard, president of the Manufacturers' Association of Connecticut, was elected to honorary membership at the first meeting of the club.

EASTERN CLASS RATE INVESTIGATION

Following the report of Examiner Hosmer, the next steps to be taken in the Eastern Class Rate Investigation are as follows:

1. A complete traffic test to determine the effect of the proposed new rates.
2. Service upon all the parties of a memorandum setting forth the results of this test.
3. A hearing at which the results of the revenue test will be incorporated in the record and all the parties given an opportunity to introduce testimony with respect to the test.
4. After the closing of the hearings a date will be fixed for the filing of exceptions to the report of Examiner Hosmer.
5. Oral argument before the entire Commission.

From present indications, hearing will be held probably in the fall. In this event, the case will not be decided by the Commission until the latter part of this year.

NEW YORK HARBOR INSPECTION TRIP, JUNE 1

About one hundred members of the Association were the guests of the United States Shipping Board at a luncheon held on the steamship "America" followed by an inspection trip of New York Harbor, on June 1.

Arrangements were made for special cars to convey the party from various Connecticut points to Grand Central Terminal, thence via special buses to Hoboken piers through the Holland Vehicular Tunnel.

General A. C. Dalton was the principal speaker at the luncheon.

The various executives, export managers and traffic managers who participated in this trip expressed the opinion that it was not only instructive but will be of great value to them in the handling of export shipment in the future.

SOUTHEASTERN CASE I. C. C. DOCKET NO. 13494

The Association was represented by F. A. Kirk and Traffic Committee members at a hearing before the New England Freight Association at Boston on May 8, filing testimony and exhibits in favor of the New England Freight Association proposal for a 3¢ per hundred pounds decrease in rates from stations on the New Haven Railroad in Connecticut to Southeastern Territory as shown in Agent Van Ummersen's I. C. C. 79 and Agent Cottrell's I. C. C. 701, covering class rates via rail-water-rail routes.

N. Y., N. H. & H. APPOINTMENTS

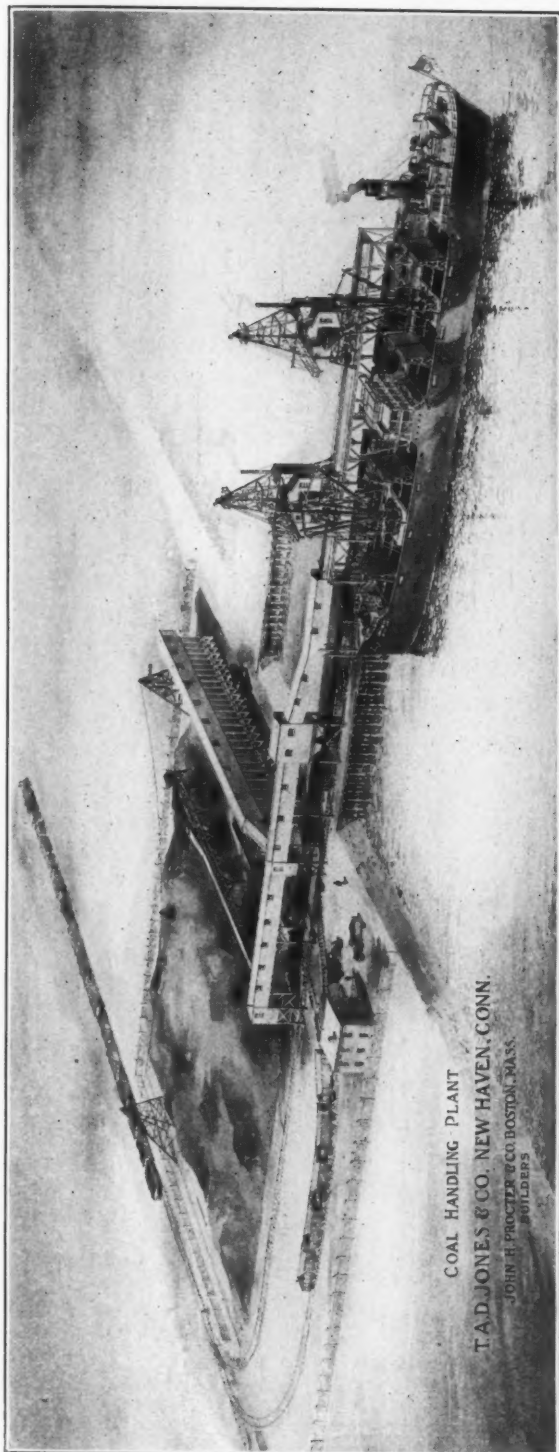
H. A. Poveleite has been appointed assistant general freight agent and commerce assistant with headquarters at New Haven.

John Douglas has been appointed assistant general freight agent with headquarters in New Haven and R. A. Flynn has been appointed general agent at Worcester.

\$393,000 FOR CONNECTICUT RIVERS AND HARBORS

Major-General Edward Jadwin, chief of army engineers for rivers and harbors improvements, has announced that for the fiscal year beginning July, the \$393,000 allotted to New England for river and harbor improvement will include:

Thames River, Connecticut, \$285,000; Connecticut River below Hartford, \$17,000; Bridgeport Harbor, \$25,000; Southport Harbor, \$1,000; Norwalk Harbor, \$65,000.



The new coal handling plant of T. A. D. Jones & Company, Inc., in New Haven Harbor and the only plant between New York and Providence equipped to handle ocean going steamers.

{ Annual Discharging Capacity, 1,000,000 tons.
 Storage Capacity, 100,000 tons.
 Shipping Capacity by Rail, 75 Cars a day.
 Unlimited Shipping Capacity by Truck.

GENUINE NAVY STANDARD NEW RIVER SMOKELESS COAL.

T. A. D. JONES & CO., Inc.

BRIDGEPORT

NEW HAVEN

NEW YORK

Sales Exchange

In this department members may list without charge any new or used equipment or supplies. All copy must be in the hands of the editor by the fifteenth day of the month preceding publication.

FOR SALE

Leather Belting

Quantity of wide leather belting, 2 and 3 ply, in good condition.

Water Wheel Governor

1 Holyoke water wheel governor No. 157. Capacity 20,000 foot lbs.

Address S. E. 184.

Time Clocks

2 International dial recording time-clocks, model No. 6085, very reasonable.

Generator

1 Eddy plating generator, 300 amperes, 12 volts or 600 amperes, 6 volts—can be used for chromium plating.

Address S. E. 183.

WANTED TO BUY

Bliss Presses

Three straight sided double crank Bliss presses as follows:

1 No. 3, 3" crank shaft, opening in die bed approximately 18" x 31½", weight of fly wheel 600 lbs.

1 No. 3½, 3½" crank shaft, opening in die bed approximately 14" x 30", weight of fly wheel 900 lbs.

1 No. 3A or No. 4, 4" crank shaft, opening in die bed approximately 24" x 35½", weight of fly wheel 1,100 lbs.

Address S. E. 185.

FACTORY SPACE

32. FOR RENT. In New Haven, modern brick factory building containing 14,000 ft. all on second floor. Heated, sprinklered, elevator, railroad siding and near two trolley lines. Low insurance rates. Storage buildings in rear. Diagram and photographs in this office.

33. FOR RENT. In Hartford, 100,000 sq. ft. manufacturing space in two buildings. 75,000 sq. ft. on 1st, 2nd and 3rd floors in brick building. The rest on 5th of recently constructed concrete steel reinforced building. Suitably located and sprinklered.

22. FOR SALE. In Plainville, two story frame shop, machinery and tools for manufacturing stampings. Lot is 455' x 135', located in center of town on railroad and just off state road. Good trolley and bus service.

27. FOR RENT. In New Haven, 7,500 sq. ft. factory space and 7,500 sq. ft. land. Railroad siding. Occupied at present by steel products manufacturer. Would consider consolidation with suitable business.

29. FOR RENT OR SALE. In Middletown. Stone factory building, one story, concrete floor. Equipped for heat, light and sprinkler service. Suitable for any kind of manufacturing. Available adjacent property touches on navigable river front and railroad siding. Photographs and diagram in this office.

Employment Service

This department is open to members free of charge. All copy must be in the hands of the editor by the fifteenth day of the month preceding publication.

PLANT MANAGER—Married. Graduate, mechanical engineer, with many years' experience as industrial engineer and production manager, desires position as plant manager of small concern or assistant manager of large one. Understands cost accounting, payroll, personnel, safety and welfare, planning and layout work. Address P. W. 331.

TRANSPORTATION—Young man, at present in banking business but studying traffic work, is anxious to locate in shipping department of manufacturing concern, and eventually become traffic manager. Address P. W. 326.

SALESMAN—Age 31. Married. Five years experience manufacturing and sales work with well known Connecticut concern. Familiar with various

branches of the office and manufacturing end of business. Address P. W. 327.

TRAFFIC MANAGER—Age 35. Experience in shipping, stock and order departments of manufacturing concerns and later as traffic manager. Address P. W. 328.

SALESMAN OR JUNIOR EXECUTIVE—Young married man thoroughly familiar with manufacturing and insurance accounting methods. Address P. W. 329.

TRANSPORTATION MAN—Age 36. Married. Has always been engaged in transportation work, as claim agent, freight clerk, and traffic manager. Anxious to connect with reliable firm. Permanency more important than salary. Address P. W. 330.

EASTERN *Safety* ELEVATORS

Better Elevators Are Not Made

Besides, EASTERN ELEVATORS are made in Connecticut, where the requirements of Connecticut manufacturers are understood and met. We solicit an opportunity to inspect your building or your plans, and submit quotations.

THE EASTERN MACHINERY CO.

38 Gregory Street
NEW HAVEN, CONNECTICUT

Sales and Service Offices at Hartford and Bridgeport

Conclusions

It is a fair conclusion that we are able to sustain the good reputation we have made in the past.

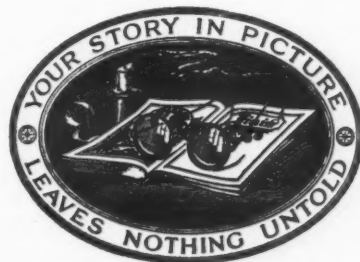
It is also a fair conclusion that we can do for you what we have done for so many others.

We ask the privilege of conferring with you on your export and import traffic.

JOHN H. FAUNCE, Inc.

Freight Contractors and Forwarders
CUSTOM HOUSE BROKERS
Public Ledger Bldg. 8-10 Bridge St.
Philadelphia, Pa. New York City.

*Offices also at Pittsburg, Buffalo,
New Orleans, London, Liverpool.*



Good Printing Plates
are essential to every piece
of printed literature.

Dowd, Wyllie & Olson

INCORPORATED
Advertising Art and Engraving
Plimpton Bldg. Ann & Pearl St.
Hartford, Conn.



Dollar Line

Passenger and Express
Freight Steamers

Sailings every 14 days
from Boston and New York

INTERCOASTAL

Los Angeles—San Francisco—Honolulu

TRANS-PACIFIC

Honolulu, Kobe, Shanghai, Hongkong, Manila,
Singapore, Penang, Colombo

ORIENT-EUROPEAN

Alexandria, Naples, Genoa, Marseilles

TRANS-ATLANTIC

Alexandria, Naples, Genoa, Marseilles for
Boston & New York

DOLLAR STEAMSHIP LINE

NEW YORK—25 Broadway Tel., B. G. 3144

WATERBURY—P. O. Box 55

BALTIMORE—Continental Bldg. NORFOLK—Southgate Forwarding Co.
BOSTON—177 State St. PHILADELPHIA—Bourse Bldg.
CHICAGO—112 West Adams St. SAN FRANCISCO—Robert Dollar Bldg.
LOS ANGELES—628 So. Spring St. SEATTLE—L. C. Smith Bldg.
VANCOUVER—402 Pender St., West

MACHINERY MACHINE PARTS DESIGNING

We have the complete equipment to handle your machine work on a contract basis. We also maintain a competent engineering department and are prepared to undertake the development, design and manufacture of machinery for any purpose.

GEARS—WORMS—CAMS
OF EVERY DESCRIPTION CUT TO ORDER



HARTFORD GEARS

**THE HARTFORD
SPECIAL MACHINERY CO.**
HARTFORD, CONN.

it's
**BITUMINOUS
VICTOR
COAL**
cleaner!

VICTOR
SPRINGFIELD
PORTAGE

"PNEUMO-GRAVITY,"

Bituminous Coals.

Mines developed and mechanically equipped for annual output of **FOUR MILLION** tons.

ANTHRACITE

The "PNEUMO-GRAVITY" Process installed at several of our mines is a *dry* method for the *mechanical removal* of *refuse* and other *impurities* from the coal, thus assuring to the consumer *clean, uniformly prepared coal*.

PEALE, PEACOCK & KERR

GRAYBAR BUILDING,
(GRAND CENTRAL TERMINAL) LEXINGTON AVE., NEW YORK

NORTH AMERICAN BUILDING,
PHILADELPHIA, PA.

